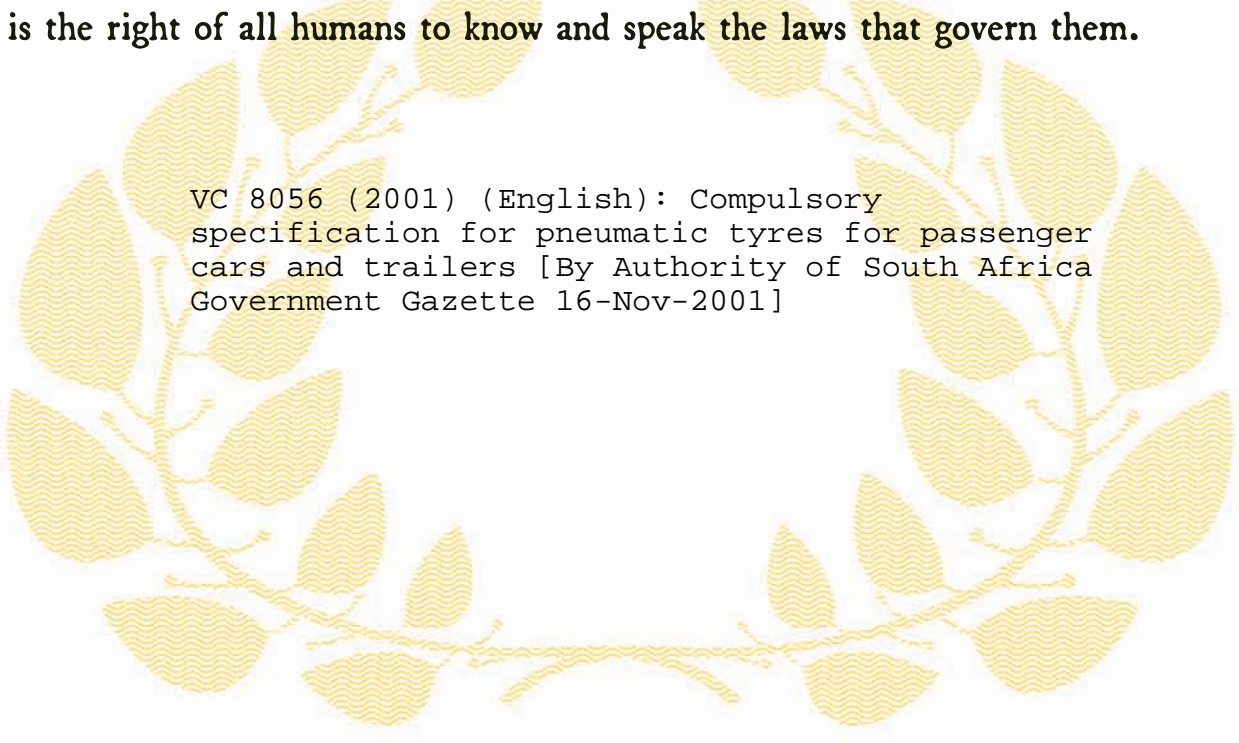




Republic of South Africa

EDICT OF GOVERNMENT

In order to promote public education and public safety, equal justice for all, a better informed citizenry, the rule of law, world trade and world peace, this legal document is hereby made available on a noncommercial basis, as it is the right of all humans to know and speak the laws that govern them.



VC 8056 (2001) (English): Compulsory
specification for pneumatic tyres for passenger
cars and trailers [By Authority of South Africa
Government Gazette 16-Nov-2001]



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Compulsory Specification for

Pneumatic tyres for passenger cars and their trailers

Published by Government Notice R1125 (Government Gazette 22822)
of 16 November 2001

ICS 83.160.10

VC 8056

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SCHEDULE

COMPULSORY SPECIFICATION FOR PNEUMATIC TYRES FOR PASSENGER CARS AND THEIR TRAILERS

1 Scope

1.1 This compulsory specification is based on ECE Regulation No. 30 of 22 December 1992, *Uniform provisions concerning the approval of pneumatic tyres for motor vehicles and their trailers*, incorporating:

Supplement 4 to the 02 series of amendments – Date of entry into force: 1 March 1994

Supplement 5 to the 02 series of amendments – Date of entry into force: 8 January 1995

Supplement 6 to the 02 series of amendments – Date of entry into force: 26 December 1996

Supplement 7 to the 02 series of amendments – Date of entry into force: 5 March 1997

1.2 It covers new pneumatic tyres for private (passenger) cars and their trailers. It does not apply to tyres designed for

- a) the equipment of vintage cars,
- b) racing purposes, and
- c) speeds exceeding 300 km/h.

1.3 Homologation shall comprise the confirmation by the South African Bureau of Standards (SABS) that the local manufacturer or importer has provided the SABS with the following specific evidence in respect of the commodity covered by this compulsory specification:

- a) a summary of evidence showing that all relevant tests have been conducted with successful results under appropriate controls in respect of the size or type of the commodity;
- b) sufficient data to enable each size or type to be identified and related to (a) above;
- c) relevant samples for the conducting of whatever tests and inspections are considered appropriate by the SABS, to verify any or all of the evidence provided;
- d) details of the quality management system applied by the manufacturer; and
- e) agreement by the manufacturing source to permit conformity of production audits to be carried out by the SABS or its appointed agent at the relevant manufacturing, assembling and testing facilities.

The SABS may issue such confirmation, on application, in respect of new sizes or types, provided that such confirmation may not be used for the purpose of advertising or to imply that all units of the commodity necessarily or consequently comply with the requirements of this compulsory specification.

2 Definitions

For the purposes of this specification, the following definitions apply:

2.1

bead

part of a pneumatic tyre which is of such shape and structure as to fit the rim and hold the tyre on the rim (see figure 1)

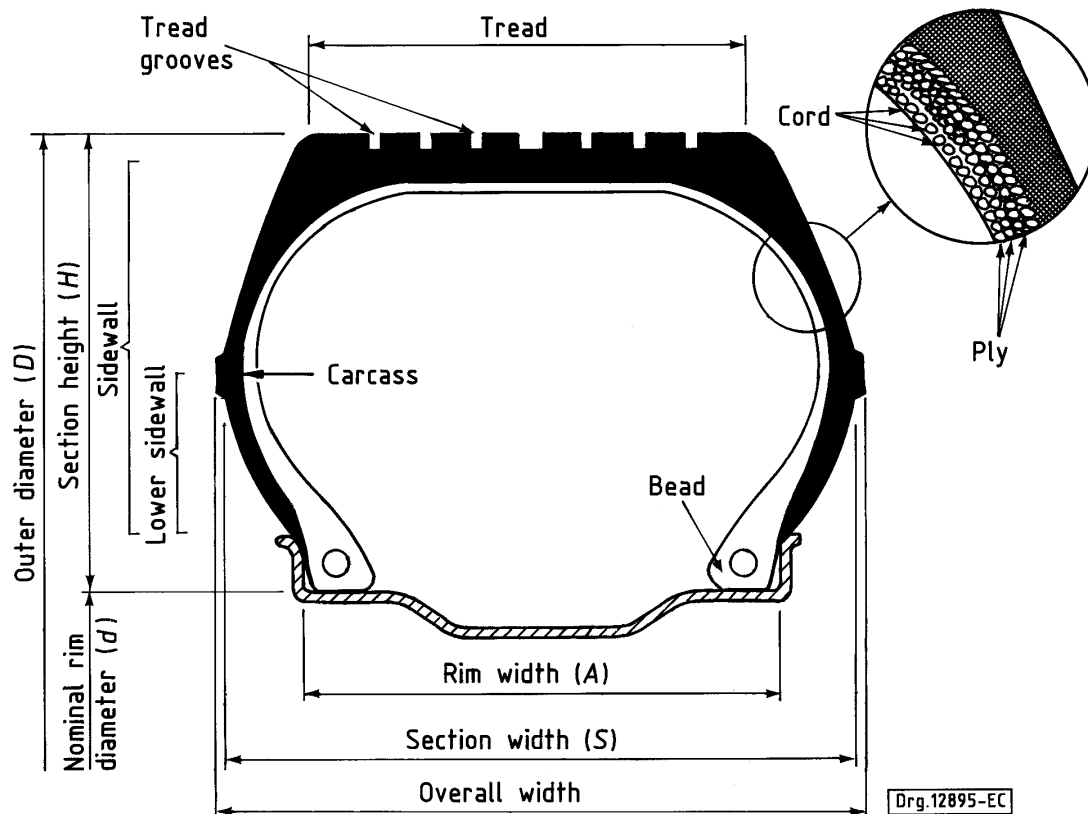


Figure 1 — Cross-section of a pneumatic tyre

2.2

carcass

part of a pneumatic tyre other than the tread and the rubber sidewalls that, when inflated, bears the load (see figure 1)

2.3

chunking

breaking away of pieces of rubber from the tread

2.4

cord

strands forming the fabric of the plies in the pneumatic tyre (see figure 1)

2.5

cord separation

parting of the cords from their rubber coating

2.6

load capacity index

load index number

figure associated with the maximum load a tyre can support.

NOTE A list of these indices and of the corresponding maximum loads is given in annex A.

2.7

lower area of tyre

area included between the point of maximum section width of the tyre and the area designed to be covered by the edge of the rim (see figure 1)

2.8

maximum load rating

maximum mass the tyre is rated to carry

2.9

measuring rim

rim on which a tyre is fitted for size measurements

2.10

nominal aspect ratio

R_a

one hundred times the number obtained by dividing the number expressing the section height (*H*) in millimetres by the number expressing the nominal section width (*S_n*) in millimetres

2.11

nominal rim diameter

d

diameter of the rim on which a tyre is designed to be mounted (see figure 1)

2.12

outer diameter

D

overall diameter of an inflated new pneumatic tyre (see figure 1)

2.13

overall width

linear distance between the outsides of the sidewalls of an inflated pneumatic tyre, including labelling (marking), decoration and protective bands or ribs (see figure 1)

2.14

ply

layer of rubber-coated parallel cords (see figure 1)

2.15

ply separation

parting of adjacent plies

2.16

principal grooves

wide grooves situated in the central zone of the tread, which covers approximately three quarters of the tread's width

2.17

rim

support for a tyre and tube assembly, or for a tubeless tyre, on which the tyre beads are seated (see figure 1)

2.18

section height

H

distance equal to half the difference between the outer diameter of the tyre and the nominal rim diameter (see figure 1)

2.19

section width

S

linear distance between the outsides of the sidewalls of an inflated pneumatic tyre, excluding elevations due to labelling (marking), decoration or protective bands or ribs (see figure 1)

2.20

sidewall

part of a pneumatic tyre between the tread and the bead (see figure 1)

2.21

snow tyre

tyre whose tread pattern and structure are primarily designed to ensure in mud and in fresh or melting snow a performance better than that of an ordinary (road type) tyre

NOTE The tread pattern of a snow tyre generally consists of groove (rib) or solid block elements (or both), more widely spaced than on an ordinary (road type) tyre.

2.22

speed category

maximum speed which the tyre can sustain, expressed by a speed category symbol (see table 1)

Table 1 — Tyre speed category

1	2
Speed category symbol	Maximum speed km/h
L	120
M	130
N	140
P	150
Q	160
R	170
S	180
T	190
U	200
H	210
V	240
W	270
Y	300

2.23

structure

technical characteristics of a pneumatic tyre's carcass

2.23.1

bias-belted

pneumatic tyre structure of diagonal (bias-ply) type in which the carcass is restricted by a belt comprising two or more layers of substantially inextensible cord material laid at alternate angles close to those of the carcass

2.23.2

diagonal

bias-ply

pneumatic tyre structure in which the ply cords extend to the beads and are laid at alternate angles of substantially less than 90° to the centre line of the tread

2.23.3

radial-ply

pneumatic tyre structure in which the ply cords extend to the beads and are laid substantially at 90° to the centre line of the tread, the carcass being stabilized by an essentially inextensible circumferential belt

2.23.4

reinforced

pneumatic tyre structure in which the carcass is more load resistant than that of the corresponding standard tyre

2.23.5

temporary-use spare tyre

tyre different from a tyre intended to be fitted to any vehicle for normal driving conditions but intended only for temporary use under restricted driving conditions

2.23.6

T-type temporary-use spare tyre

type of temporary-use spare tyre designed for use at inflation pressures higher than those established for standard and reinforced tyres

2.24

test rim

rim on which a tyre is fitted for load/speed/endurance testing

2.25

theoretical rim

rim whose width would be equal to x times the nominal section width of a tyre

NOTE The value of x should be specified by the manufacturer of the tyre.

2.26

tread

part of a pneumatic tyre which comes into contact with the ground, protects the carcass against mechanical damage and contributes to ground adhesion (see figure 1)

2.27

tread groove

space between two adjacent ribs or blocks in the tread pattern (see figure 1)

2.28

tread separation

pulling away of the tread from the carcass

2.29

tread-wear indicators

projections within the tread grooves designed to give a visual indication of the degree of wear of the tread

2.30

type of pneumatic tyre

category of pneumatic tyres which are similar in such essential respects as:

- a) manufacturer's trade name or trademark;
- b) tyre-size designation (see 2.31);
- c) category of use (ordinary (road type) or snow tyre (see 2.21) or for temporary use);
- d) structure (bias-belted (see 2.23.1), diagonal (bias-ply, see 2.23.2), radial-ply (see 2.23.3));
- e) speed category (see 2.22);

- f) load capacity index (see 2.6); and
- g) tyre cross-section.

2.31

tyre-size designation

designation showing the following:

- a) The nominal section width (S_1). This width is expressed in millimetres, except in the case of the types of tyre for which the size designation is shown in the first column of the tables in annex B, excluding table B.4 where the nominal section width is expressed in numeric code.
- b) The nominal aspect ratio except in the case of certain types of tyre for which the size designation is shown in the first column of the tables in annex B.
- c) A conventional number denoting the nominal rim diameter expressed either in codes (numbers below 100) or millimetres (numbers above 100).
- d) The letter T in front of the nominal section width in case of the T-type temporary-use spare tyres.

3 Requirements

3.1 Dimensions of tyres

3.1.1 Section width of a tyre

3.1.1.1 The section width (S) shall be calculated using the following formula

$$S = S_1 + K(A - A_1)$$

where

S is the section width, in millimetres, and measured on the measuring rim;

S_1 is the nominal section width, in millimetres, as shown on the sidewall of the tyre in the size designation of the tyre as described;

A is the width of the measuring rim, in millimetres, as shown by the manufacturer in the descriptive note;

A_1 is the width of the theoretical rim, in millimetres.

A_1 shall be taken to equal S_1 multiplied by the factor x , as specified by the manufacturer, and K shall be taken to equal 0,4.

3.1.1.2 For the types of tyres for which the size designation is given in the first column of the tables in annex B, the section width shall be that given opposite the tyre designation in column 4 of these tables.

3.1.2 Outer diameter of a tyre

3.1.2.1 The outer diameter of a tyre shall be calculated using the following formula:

$$D = d + 2H$$

where

D is the outer diameter, in millimetres;

d is the conventional number defined in 2.31(c), in millimetres;

H is the nominal section height, in millimetres, equal to $0,01 S_1 \times Ra$;

S_1 is the nominal section width, in millimetres;

Ra is the nominal aspect ratio,

with d , H , S_1 and Ra as shown on the sidewall of the tyre in conformity with the requirements of 5.3.

3.1.2.2 For the types of tyres for which the size designation is given in the first column of the tables in annex B, the outer diameter shall be that given opposite the size designation in column 3 of these tables.

3.1.3 Method of measuring pneumatic tyres

The dimensions of pneumatic tyres shall be measured by the procedure described in annex C.

3.1.4 Tyre section width specifications

3.1.4.1 The overall width of a tyre may be less than the section width determined in accordance with 3.1.1.

3.1.4.2 The section width may exceed that value by the following percentages:

a) for radial-ply tyres: 4 %; and

b) for diagonal (bias-ply) tyres: 6 %.

3.1.4.3 In addition, if the tyre has a special protective band, the figures as increased by the above tolerance may be exceeded by 8 mm.

3.1.5 Tyre outer diameter specifications

The outer diameter of a tyre shall not be outside the values D_{\min} and D_{\max} obtained from the following formulae:

$$D_{\min} = d + 2H \times a$$

$$D_{\max} = d + 2H \times b$$

where,

for sizes listed in annex B,

$$H = 0,5 (D - d)$$

NOTE For definition of the variables see 3.1.2.1.

where,

for other sizes not listed in annex B,

H and d are as defined in 3.1.2.1

where,

values for coefficients a and b are respectively

$$a = 0,97$$

for ordinary (road type) tyres,

$$b = 1,04 \text{ (for radial tyres); or}$$

$b = 1,08$ (for diagonal and bias-belted tyres)

and, where

for snow tyres the overall diameter (D_{\max}) established in conformity with the above may be exceeded by 1 %.

3.2 Load/speed performance test

3.2.1 Each type of pneumatic tyre shall undergo a load/speed performance test as described in annex D.

3.2.2 A tyre that, after undergoing the load/speed performance test, does not exhibit any tread separation, ply separation, cord separation, chunking or broken cords, shall be deemed to have passed the test.

3.2.3 The outer diameter of the tyre, measured six hours after the load/speed performance test, shall not differ by more than 3,5 % from the outer diameter as measured before the test.

3.3 Tread-wear indicators

3.3.1 The pneumatic tyre shall include not less than six transverse rows of tread-wear indicators, approximately equally spaced and situated in the principal grooves of the tread. The tread-wear indicators shall be such that they cannot be confused with the rubber ridges between the ribs or blocks of the tread.

3.3.2 However, in the case of tyres of dimensions appropriate for mounting on rims of a nominal diameter of 12 or less, four rows of tread-wear indicators shall be accepted.

3.3.3 The tread-wear indicators shall provide a means of indicating, with a tolerance of $\begin{matrix} +0,60 \\ -0,0 \end{matrix}$ mm, when the tread grooves are no longer more than 1,6 mm deep.

3.3.4 The height of tread-wear indicators is determined by measuring the difference between the depth, from the tread's surface, to the top of the tread-wear indicator and to the bottom of the tread groove close to the slope at the base of the tread-wear indicator.

4 Equivalent requirements

The requirements of this specification may be deemed to have been met if a tyre complies with the requirements of ECE Regulation No. 30 of 22 December 1992, *Uniform provisions concerning the approval of pneumatic tyres for motor vehicles and their trailers*.

5 Markings

5.1 Pneumatic tyres shall bear on both sidewalls in the case of symmetrical tyres and at least on the outer sidewall in the case of asymmetrical tyres the following:

- a) the manufacturer's trade name or trademark;
- b) the tyre-size designation as defined in 2.31;
- c) an indication of the structure

- 1) on diagonal (bias-ply) tyres, no marking, or the letter "D" placed in front of the rim-diameter marking,

- 2) on radial-ply tyres, the letter "R" placed in front of the rim-diameter marking, and optionally, the word "RADIAL",
 - 3) on bias-belted tyres, the letter "B" placed in front of the rim-diameter marking, and in addition the words "BIAS-BELTED",
 - 4) on radial-ply tyres suitable for speeds higher than 240 km/h, the letter "R" placed in front of the rim-diameter marking, may be replaced with "ZR";
- d) an indication of the tyre's speed category, by means of the symbol shown in table 1;
 - e) the inscription M+S or M.S or M&S in the case of a snow tyre;
 - f) the load capacity index as defined in 2.6;
 - g) the word "TUBELESS" if the tyre is designed for use without an inner tube;
 - h) the word "REINFORCED" if the tyre is a reinforced tyre;
 - i) the date of manufacture in the form of a group of four digits, the first two showing the week number and the last two the year of manufacture. This marking may be placed on one sidewall only; and
 - j) an identification of the tyre rim fitment configuration when it differs from the standard configuration.

5.2 Annex E gives an example of the arrangement of the tyre markings.

5.3 The markings referred to in 5.1 shall be moulded onto or into the tyres. They shall be clearly legible and situated in the lower area of the tyre on at least one of its sidewalls, except for the inscription mentioned in 5.1(a).

Annex A

(normative)

Load capacity indices

Table A.1 — Load capacity indices

1	2	1	2	1	2	1	2
Li ^a	kg ^b	Li	kg	Li	kg	Li	kg
0	45	30	106	62	265	94	670
1	46,2	31	109	63	272	95	690
2	47,5	32	112	64	280	96	710
3	48,7	33	115	65	290	97	730
4	50	34	118	66	300	98	750
5	51,5	35	121	67	307	99	775
6	53	36	125	68	315	100	800
7	54,5	37	128	69	325	101	825
8	56	38	132	70	335	102	850
9	58	39	136	71	345	103	875
10	60	40	140	72	355	104	900
11	61,5	41	145	73	365	105	925
12	63	42	150	74	375	106	950
13	65	43	155	75	387	107	975
14	67	44	160	76	400	108	1 000
15	69	45	165	77	412	109	1 030
16	71	46	170	78	425	110	1 060
17	73	47	175	79	437	111	1 090
18	75	48	180	80	450	112	1 120
19	77,5	49	185	81	462	113	1 150
20	80	50	190	82	475	114	1 180
21	82,5	51	195	83	487	115	1 215
22	85	52	200	84	500	116	1 250
23	87,5	53	206	85	515	117	1 285
24	90	54	212	86	530	118	1 320
25	92,5	55	218	87	545	119	1 360
26	95	56	224	88	560	120	1 400
27	97,5	57	230	89	580		
28	100	58	236	90	600		
29	103	59	243	91	615		
		60	250	92	630		
		61	257	93	650		
^a Li = Load capacity maximum index.							
^b kg = Corresponding maximum mass that the tyre is rated to carry.							

Annex B

(normative)

Tyre-size designation and dimensions

Table B.1 — Tyres in diagonal construction (European tyres)

1	2	3	4	5
Size designation	Measuring rim width code	Overall diameter ^a mm	Section width ^a mm	Nominal rim diameter (d) mm
Super ballon series				
4.80 – 10	3.3	490	128	254
5.20 – 10	3.5	508	132	254
5.20 – 12	3.5	558	132	305
5.60 – 13	4	600	145	330
5.90 – 13	4	616	150	330
6.40 – 13	4.5	642	163	330
5.20 – 14	3.5	612	132	356
5.60 – 14	4	626	145	356
5.90 – 14	4	642	150	356
6.40 – 14	4.5	666	163	356
5.60 – 15	4	650	145	381
5.90 – 15	4	668	150	381
6.40 – 15	4.5	692	163	381
6.70 – 15	4.5	710	170	381
7.10 – 15	5	724	180	381
7.60 – 15	5.5	742	193	381
8.20 – 15	6	760	213	381
Low section series				
5.50 – 12	4	552	142	305
6.00 – 12	4.5	574	156	305
7.00 – 13	5	644	178	330
7.00 – 14	5	668	178	356
7.50 – 14	5.5	688	190	356
8.00 – 14	6	702	203	356
6.00 – 15 L	4.5	650	156	381
Super low section series ^b				
155 – 13/6.15 – 13	4.5	582	157	330
165 – 13/6.45 – 13	4.5	600	167	330
175 – 13/6.95 – 13	5	610	178	330
155 – 14/6.15 – 14	4.5	608	157	356
165 – 14/6.45 – 14	4.5	626	167	356
175 – 14/6.95 – 14	5	638	178	356
185 – 14/7.35 – 14	5.5	654	188	356
195 – 14/7.75 – 14	5.5	670	198	356
Ultra low section				
5.9 – 10	4	483	148	254
6.5 – 13	4.5	586	166	330
6.9 – 13	4.5	600	172	330
7.3 – 13	5	614	184	330
^a Tolerance: See 3.1.4 and 3.1.5.				
^b The following alternative size designations are accepted: 185-14/7.35-14 or 185-14 or 7.35-14 or 7.35-14/185-14.				

Table B.2 — Millimetric series — Radial (European tyres)

1	2	3	4	5
Size designation	Measuring rim width code	Overall diameter ^a mm	Section width ^a mm	Nominal rim diameter (<i>d</i>) mm
125 R 10	3.5	459	127	254
145 R 10	4	492	147	254
125 R 12	3.5	510	127	305
135 R 12	4	522	137	305
145 R 12	4	546	147	305
155 R 12	4.5	550	157	305
125 R 13	3.5	536	127	330
135 R 13	4	548	137	330
145 R 13	4	566	147	330
155 R 13	4.5	578	157	330
165 R 13	4.5	596	167	330
175 R 13	5	608	178	330
185 R 13	5.5	624	188	300
125 R 14	3.5	562	127	356
135 R 14	4	574	137	356
145 R 14	4	590	147	356
155 R 14	4.5	604	157	356
165 R 14	4.5	622	167	356
175 R 14	5	634	178	356
185 R 14	5.5	650	188	356
195 R 14	5.5	666	198	356
205 R 14	6	686	208	356
215 R 14	6	700	218	356
225 R 14	6.5	714	228	356
125 R 15	3.5	588	127	381
135 R 15	4	600	137	381
145 R 15	4	616	147	381
155 R 15	4.5	630	157	381
165 R 15	4.5	646	167	381
175 R 15	5	660	178	381
185 R 15	5.5	674	188	381
195 R 15	5.5	690	198	381
205 R 15	6	710	208	381
215 R 15	6	724	218	381
225 R 15	6.5	738	228	381
235 R 15	6.5	752	238	381
175 R 16	5	686	178	406
185 R 16	5.5	698	188	406
205 R 16	6	736	208	406

^a Tolerance: See 3.1.4 and 3.1.5.**Table B.3 — High flotation radial tyres**

1	2	3	4	5
Size designation	Measuring rim width code	Overall diameter ^a mm	Section width ^a mm	Nominal rim diameter (<i>d</i>) mm
27 × 8.50 R 14	7	674	218	356
30 × 9.50 R 15	7.5	750	240	381
31 × 10.50 R 15	8.5	775	268	381
31 × 11.50 R 15	9	775	290	381
32 × 11.50 R 15	9	801	290	381
33 × 12.50 R 15	10	826	318	381

^a Tolerance: See 3.1.4 and 3.1.5.

Table B.4 — 45 Series — Radial on TR metric 5° rims

1	2	3	4
Size designation	Measuring rim width mm	Overall diameter mm	Section width mm
280/45 R 415	240	661	281

Table B.5 — 60 series — Radial^a (European tyres)

1	2	3	4
Size designation	Measuring rim width code	Overall diameter ^b mm	Section width ^b mm
165/60 R 12	5	504	167
165/60 R 13	5	530	167
175/60 R 13	5.5	536	178
185/60 R 13	5.5	548	188
195/60 R 13	6	566	198
205/60 R 13	6	578	208
215/60 R 13	6	594	218
225/60 R 13	6.5	602	230
235/60 R 13	6.5	614	235
165/60 R 14	5	554	167
175/60 R 14	5.5	562	178
185/60 R 14	5.5	574	188
195/60 R 14	6	590	198
205/60 R 14	6	604	208
215/60 R 14	6	610	215
225/60 R 14	6	620	220
235/60 R 14	6.5	630	231
245/60 R 14	6.5	642	237
265/60 R 14	7	670	260
185/60 R 15	5.5	600	188
195/60 R 15	6	616	198
205/60 R 15	6	630	208
215/60 R 15	6	638	216
225/60 R 15	6.5	652	230
235/60 R 15	6.5	664	236
255/60 R 15	7	688	255
205/60 R 16	6	654	208
215/60 R 16	6	662	215
225/60 R 16	6	672	226
235/60 R 16	6.5	684	232

^a Dimensional data applicable to some tyres in existence. For new approvals, dimensions calculated according to 3.1.1.1 and 3.1.2.1 shall apply.

^b Tolerance: See 3.1.4 and 3.1.5.

Table B.6 — High flotation radial tyres

1	2	3	4
Size designation	Measuring rim width code	Overall diameter ^a mm	Section width ^a mm
27 × 8.50 R 14	7	674	218
30 × 9.50 R 15	7.5	750	240
31 × 10.50 R 15	8.5	775	268
31 × 11.50 R 15	9	775	290
32 × 11.50 R 15	9	801	290
33 × 12.50 R 15	10	826	318
^a Tolerance: See 3.1.4 and 3.1.5.			

Annex C

(normative)

Method of measuring pneumatic tyres

C.1 Mount the tyre on the measuring rim specified by the manufacturer and inflate it to a pressure of 300 kPa to 350 kPa.

C.2 Adjust the pressure as follows:

- a) in standard bias-belted tyres: to 170 kPa;
- b) in diagonal (bias-ply) tyres: to pressures in accordance with table C.1;
- c) in standard radial tyres: to 180 kPa;
- d) in reinforced tyres: to 230 kPa; and
- e) in T-type temporary-use spare tyres: to 240 kPa.

Table C.1 — Tyre inflating pressure for measuring tyres

1	2	3	4
Ply rating	Pressure kPa		
	Speed category		
	L, M, N	P, Q, R, S	T, U, H, V
4	170	200	—
6	210	240	260
8	250	280	300

C.3 Condition the tyre, mounted on its rim, at ambient room temperature for not less than 24 h, except if otherwise prescribed in 3.2.3.

C.4 Readjust the pressure to the level specified in C.2.

C.5 Measure the overall width by calliper at six equally spaced points, taking the thickness of the protective ribs or bands into account. The highest measurement so obtained is taken as the overall width.

C.6 Determine the outer diameter by measuring the maximum circumference and dividing the figure so obtained by π (3,1416).

Annex D (normative)

Procedure for load/speed performance tests

D.1 Preparing the tyre

D.1.1 Mount a new tyre on the test rim specified by the manufacturer.

D.1.2 Inflate the tyre to the following appropriate pressure:

a) in the case of a tyre other than a T-type temporary-use tyre, to the appropriate pressures as given in table D.1; or

b) in the case of a T-type temporary-use spare tyre, to a pressure of 420 kPa.

Table D.1 — Tyre inflating pressure for load/speed performance tests

1	2	3	4	5	6	7
Speed category	Diagonal (bias-ply) tyres			Radial tyres		Bias-belted tyres
	kPa			kPa		kPa
	Ply rating			Standard	Reinforced	Standard
	4	6	8			
L, M, N	230	270	300	—	—	—
P, Q, R, S	260	300	330	260	300	260
T, U, H	280	320	350	280	320	280
V	300	340	370	300	340	—
W				320	360	—
Y					360	—

D.1.3 The manufacturer may request, giving reasons, the use of a test inflation pressure differing from those given in D.1.2. In such a case the tyre shall be inflated to that pressure.

D.1.4 Condition the tyre and wheel assembly at test room temperature for not less than 3 h.

D.1.5 Readjust the tyre pressure to that specified in D.1.2 or D.1.3.

D.2 Test procedure

D.2.1 Mount the tyre and wheel assembly on a test axle and press it against the outer face of a smooth power-driven test drum $1,70\text{ m} \pm 1\%$ or $2\text{ m} \pm 1\%$ in diameter.

D.2.2 Apply to the test axle a load equal to 80 % of:

- a) the maximum load rating equated to the load capacity index for tyres with speed category symbols L to H inclusive;
- b) the maximum load rating associated with a maximum speed of 240 km/h for tyres with speed symbol "V" (see D.4.2);
- c) the maximum load rating associated with a maximum speed of 270 km/h for tyres with speed symbol "W" (see D.4.3); or

d) the maximum load rating associated with a maximum speed of 300 km/h for tyres with speed symbol "Y" (see D.4.4).

D.2.3 Throughout the test the tyre pressure shall not be corrected and the test load shall be kept constant.

D.2.4 During the test the temperature in the test room shall be maintained at between 20 °C and 30 °C or at a higher temperature if the manufacturer agrees.

D.2.5 Carry out the test without interruption and in conformity with the following:

- a) Time taken to pass from zero speed to initial test speed: 10 min.
- b) Initial test speed: prescribed maximum speed for the type of tyre (see 2.22), less 40 km/h in the case of the smooth wheel having $1,70 \text{ m} \pm 1 \%$ in diameter or less 30 km/h in the case of the smooth wheel having $2 \text{ m} \pm 1 \%$ in diameter.
- c) Successive speed increments: 10 km/h.
- d) Duration of test at each speed step except for the last speed step: 10 min.
- e) Duration of test at last speed step: 20 min.
- f) Maximum test speed: prescribed maximum speed for the type of tyre, less 10 km/h in the case of the smooth wheel having $1,70 \text{ m} \pm 1 \%$ in diameter or equal to the prescribed maximum speed in the case of the smooth wheel having $2 \text{ m} \pm 1 \%$ in diameter.
- g) However, for tyres suitable for maximum speed for 300 km/h (speed symbol "Y"), the duration of the test is 20 min at the initial test speed step and 10 min at the last speed step.

D.2.6 Check for compliance with the requirements in 3.2.

D.3 Equivalent test methods

If a method other than that described in D.2 is used, its equivalence shall be demonstrated.

D.4 Maximum load rating for tyres of different speed categories

D.4.1 For speeds not exceeding 210 km/h the maximum load rating shall not exceed the value associated with the load capacity of the tyre.

D.4.2 For speeds exceeding 210 km/h, but not exceeding 240 km/h (tyres classified with speed category symbol "V"), the maximum load rating shall not exceed the percentage (indicated in table D.1 with reference to the speed capability of the car to which the tyre is fitted) of the value associated with the load capacity index of the tyre.

Table D.1 — Maximum load rating for tyres of speed category V

1	2
Maximum speed km/h	Load %
215	98,5
220	97
225	95,5
230	94
235	92,5
240	91
NOTE For intermediate maximum speeds linear interpolations of the maximum load rating are allowed.	

D.4.3 For speeds exceeding 240 km/h (tyres classified with speed category symbol "W") the maximum load rating shall not exceed the percentage (indicated in table D.2 with reference to the speed capability of the car to which the tyre is fitted) of the value associated with the load capacity index of the tyre.

Table D.2 — Maximum load rating for tyres of speed category W

1	2
Maximum speed km/h	Load %
240	100
250	95
260	90
270	85
NOTE For intermediate maximum speeds linear interpolations of the maximum load rating are allowed.	

D.4.4 For speeds exceeding 270 km/h (tyres classified with speed category symbol "Y") the maximum load rating shall not exceed the percentage (indicated in table D.3 with reference to the speed capability of the car to which the tyre is fitted) of the value associated with the load capacity index of the tyre.

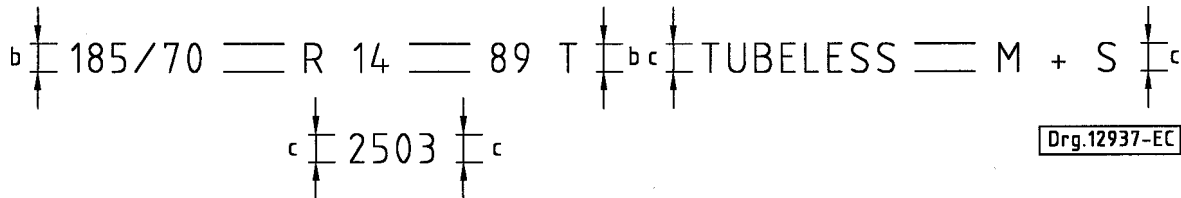
Table D.3 — Maximum load rating for tyres of speed category Y

1	2
Maximum speed km/h	Load %
270	100
280	95
290	90
300	85
NOTE For intermediate maximum speeds linear interpolations of the maximum load rating are allowed.	

Annex E (informative)

Arrangement of tyre markings

E.1 The following is an example of the markings to be borne by types of tyre placed on the market after the entry into force of this specification.



where

b = 6 mm (min.);

c = 4 mm (min.).

E.2 These markings define a pneumatic tyre that

- a) has a nominal section width of 185,
- b) has a nominal aspect ratio of 70,
- c) is of radial-ply structure (R),
- d) has a nominal rim diameter of 14,
- e) has a load capacity of 580 kg, corresponding to load index 89 in annex A,
- f) is of speed category T (maximum speed 190 km/h),
- g) is capable of being fitted without an inner tube ("tubeless"),
- h) is of the "snow" type (M+S), and
- i) is manufactured in the twenty-fifth week of the year 2003.

E.3 The positioning and order of the markings constituting the tyre designation shall be the following:

- a) the size designation comprising the nominal section width, the nominal aspect ratio, the type of structure symbol (where applicable) and the nominal rim diameter grouped as shown in the above example: 185/70 R 14;
- b) the load index and the speed category symbol shall be placed together near the size designation. They may either precede or follow it or be placed above or below it; and
- c) the symbols "tubeless", "reinforced" and "M+S" may be at a distance from the size designation.